

REMARKS

Amendment to the claims

The language of claim 1 has been amended to recite "A method of etching an uniform silicon layer, comprising: providing a patterned silicon layer with etching residues on sidewalls thereof; forming an etching buffer layer conformally on the ~~surface~~ etching residues and the top layer-surface of the patterned silicon layer; and etching the etching buffer layer, the etching residues, and the patterned silicon layer until the thickness of the patterned silicon layer is reduced".

The language of claim 7 has been amended to recite "A method of etching an uniform silicon layer, comprising: providing a silicon layer; forming a mask with patterns on the silicon layer; performing a first etching to pattern the silicon layer using the mask as a shield, to form a patterned silicon layer with patterns and etching residues on sidewalls thereof; removing the mask; forming an etching buffer layer conformally on the ~~surface~~ etching residues and the top layer-surface of the patterned silicon layer; and performing a second etching to remove the etching buffer layer and the etching residues, to reduce the thickness of the patterned silicon layer".

The language of claim 14 has been amended to recite "A method of etching a silicon layer to avoid non-uniformity, comprising: providing a silicon layer; forming a mask with patterns on the silicon layer; performing a first etching to pattern the silicon layer using the mask as a shield, to form a patterned silicon layer with patterns and etching residues on sidewalls thereof; removing the mask; introducing a gas containing oxygen treatment to conformally form an etching buffer layer on the ~~surface~~ etching residues and the top layer-surface of the patterned silicon layer; and performing a second etching to remove the etching buffer layer and the etching residues formed on sidewalls thereof, to reduce the thickness of the patterned silicon layer".

The amendments of claims 1, 7 and 14 are supported by the application as filed, in particular Figs. 2D-2E and the corresponding portions of the specification.

Further, the language of claims 11 and 16 has been amended to recite that Cl₂, SF₆, or HBr is "used during the second etching". The amendments of claims 11 and 16 are supported by the application as filed, in particular paragraph [0023] of the specification.

Rejection under 35 U.S.C. 112

Claims 11 and 16 stand rejected under 35 U.S.C. 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Examiner finds that claims 11 and 16 are indefinite for not indicating for which etching step the recited gases are used. Claims 11 and 16 have been amended to recite that the gases are used during the second etching, and the Applicants respectfully request the Examiner to withdraw this rejection.

Rejection under 35 U.S.C. 102

Claims 1-3, 6-10, 13-15 and 18-19 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,204,130 to Gardner. Applicants respectfully disagree.

Claim 1

The Examiner asserts that Gardner teaches a method comprising: providing a patterned polysilicon; forming an oxide layer conformally on the surface and the top layer of the patterned polysilicon layer; and etching the oxide layer. Applicants note that the Examiner has failed to show that Gardner teaches "*providing a patterned silicon layer with etching residues on sidewalls thereof; forming an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer; and etching the etching buffer layer, the etching residues, and the patterned silicon layer*", as recited in amended claim 1.

Further, Applicants note that, as acknowledged by the Examiner, in Gardner "the oxide removed is made from the polysilicon", and note that the oxide of Gardner is formed in the polysilicon 209, not on the polysilicon, as clearly illustrated in Figs. 2D-2E of Gardner. Accordingly, Applicants submit that even if the Examiner were to assert that the polysilicon 209 inherently comprise etching residues on its sidewalls, Gardner would provide for forming the polysilicon layer under the residues on the sidewalls,

and not on the residues. Applicants therefore submit that at least in view of the above, Gardner cannot be deemed to suggest *forming an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer*", as recited in claim 1.

Accordingly, Applicants submit that claim 1 is patentable over Gardner.

Claims 7 and 14

The above arguments can be used to show that Gardner fails to disclose or suggest a method as recited in claim 7, and in particular comprising "*forming an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer*", or a method as recited in claim 14, and in particular comprising "*introducing a gas containing oxygen treatment to conformally form an etching buffer layer on the etching residues and the top surface of the patterned silicon layer*". Accordingly, Applicants respectfully submit that claims 7 and 14 are patentable over Gardner.

Claims 2-3, 6, 8-10, 13, 15, 18 and 19

Claims 2-3 and 6 depend directly or indirectly on claim 1; claims 8-10 and 13 depend directly or indirectly on claim 7, and claims 15, 18 and 19 depend directly on claim 14. Applicants respectfully submit that at least in view of their dependency on claims 1, 7 or 14, claims 2-3, 6, 8-10, 13, 15, 18 and 19 are patentable over Gardner.

Rejection under 35 U.S.C. 103

Claims 4, 11 and 16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner in view of U.S. Pat. No. 5,977,589 to Schloesser, and claims 5, 12, 17 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner. Applicants respectfully disagree.

Claims 4, 11 and 16

Claim 4 depends on claim 1, claim 11 depends on claim 7, and claim 16 depends on claim 14. Applicants respectfully submit that the Examiner has failed to show that

Schloesser discloses or suggests a method as recited in claims 1 or 7, and in particular comprising "*forming an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer*", or a method as recited in claim 14, and in particular comprising "*introducing a gas containing oxygen treatment to conformally form an etching buffer layer on the etching residues and the top surface of the patterned silicon layer*". Accordingly, in view of the above, Applicants submit that the Examiner has failed to show that a combination of Gardner and Schloesser would have led one skilled in the art to a method as recited in claims 1, 7 or 14. Applicants therefore respectfully submit that claims 1, 7 and 14 are patentable over Gardner in view of Schloesser, and that at least in view of their dependency on claims 1, 7 or 14, claims 4, 11 and 16 are patentable over Gardner in view of Schloesser.

Claims 5, 12, 17 and 20

Claims 5 and 12 depend on claim 1; claims 17 and 20 depend on claim 14. Applicants respectfully submit that at least in view of their dependency on claims 1 or 14, claims 5, 12, 17 and 20 are patentable over Gardner.

* * *

In view of the above, Applicants submit that the application is now in condition for allowance and respectfully urge the Examiner to pass this case to issue.

The Commissioner is authorized to charge any additional fees that may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, the Commissioner is authorized to treat this response as

including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

I hereby certify that this correspondence is being deposited with the United States Post Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

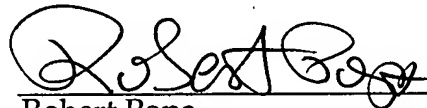
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